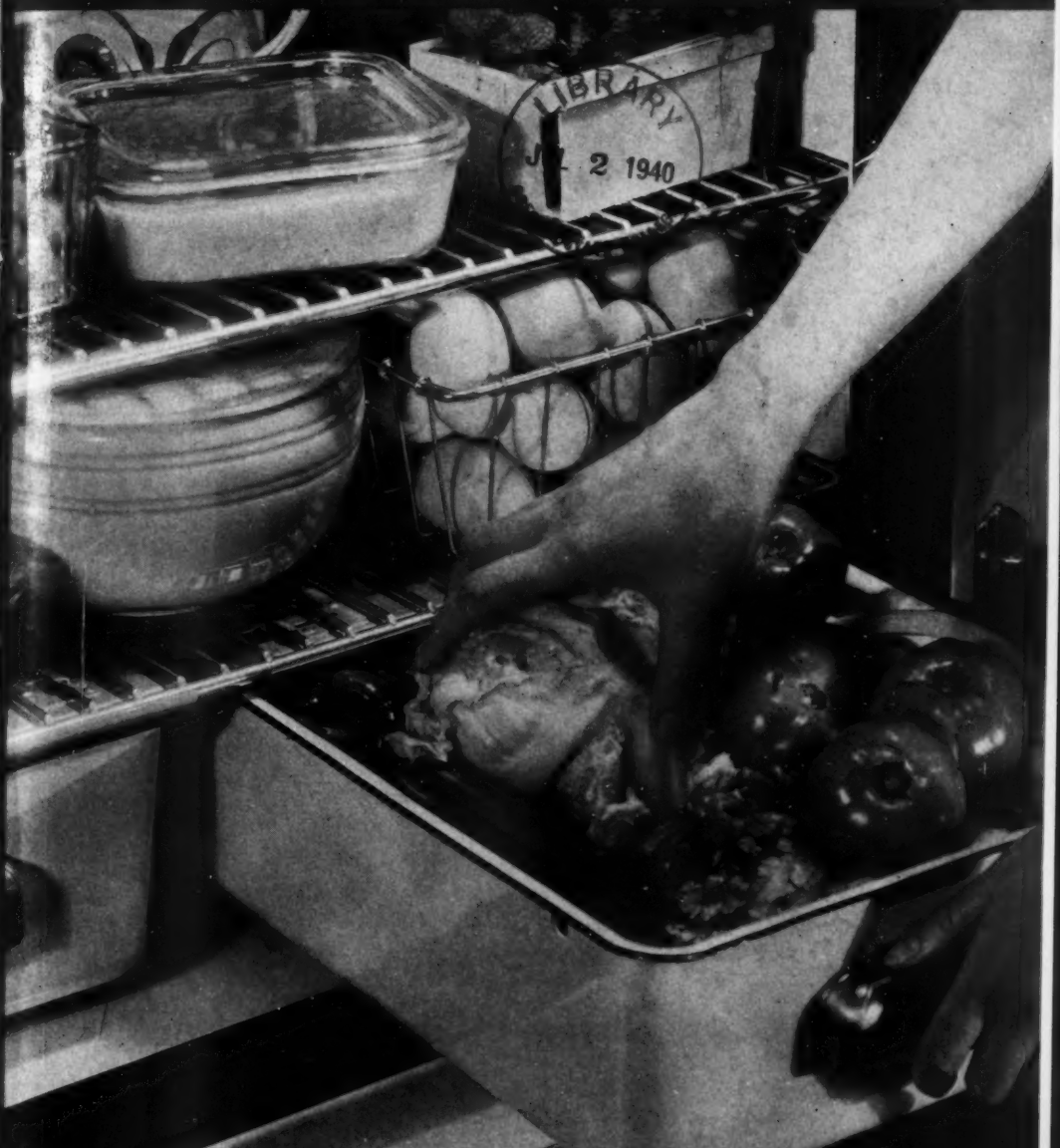
ELECTRICITY on the FARM

JULY 1940



THE NATIONAL MAGAZINE OF RURAL ELECTRIFICATION

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INTERNATIONAL COOLERS

E.O.F.

Editor's Chat

BOY, OH BOY ! !

These are the days ! ! ! — The days of the old Swimmin' Hole ! ! ! Regular Tom Sawyer, Huckleberry Finn days ! The days when any kind of a limb—poison oak excepted —and it doesn't need to be hickory, either—makes a good clothes hanger.

The days when those pioneering dreams take hold—o' campin' out—on the sand bars—cookin' fish as you ketch 'em—o' sleepin' out where the countless stars twinkle overhead—and then, as the rising sun makes a million jewels in the morning dew—to paddle away, in your dream canoe—to those unknown lands ! ! !

Yes, it's wonderful to have dreams ! ! !—to steal away sometimes—even if the dream canoe is a 1930 chariot, and a bit wheezy. It's wonderful to live as a fellow should live—and it's wonderful two or three times over, to come right back home and live with all the modern things—if we'll only bring back the spirit of those days gone by—of the helping hand—of friendliness for the folks you meet from day to day along the Road of Life. If we'll do that—well, a vacation's really worth a lot.

Cy Young in Pepco Synchronizer.

INVENTOR

At various times the thought has been expressed that what rural electrification really needs is inventors—persons with genius to devise "snap-whichers" that will enable farmers, at low cost, to use electricity profitably.

Who invented the steamboat? Well, I have just finished reading a book on "Inventing the Ship" in which the author devoted many pages to reliable facts proving that Robert Fulton did not invent the steamboat and did not claim it. Yet, you and I have always thought he did. Why? Robert Fulton was the first man to take the ideas and developments of others and, by persistence and against obstacles, carry through to the first successful money-making use of the steamboat. The development of the ship started as long ago as 6000 B. C. when the Egyptians produced a sail ship. Hundreds more added ideas. Robert Fulton made them a commercial success.

There are electric tractors in this country and abroad. Dozens of inventors have produced electric churns, electric fence controllers, fan type brooders, mechanical freezers. The inventor may scarcely be known. The fellow whom we credit is the fellow who made use of the device successfully and told the world about it. The fellow who made the money is the one who saw a good thing and put it to work. Have you heard of the revolutionary process of milling wheat on cooled rolls without removing the germ and with no danger of rancidity? Whose name was mentioned with it? It was Mr. Brown, a Chicago newspaper man who heard about it, did something about it, bought the mill and right to the process, and is licensing the manufacture of flour.

There are steamboats, cool roll flour mills, irrigation pumps, heat lamps, zipper fasteners and claret flavored watermelons all about us for the grasping. Who will be the "inventor" of electro-farming in your county?

PREPAREDNESS

At the present moment there is a surplus of labor and of feeds, grains and other agricultural products in the United States. Prices are not too high to please producers. But the world is at war. Millions of men who would normally be producers are now destroyers. Grain fields are battle fields. As this is written, the United States' preparedness program is expanding by billions per week. It will mean work for men in factories, in army, in air corps, in transportation. We cannot tell what next week will bring. The New Jersey Experiment Station is warning poultrymen that feed prices may be out of line with poultry and egg prices and that poultrymen had better keep on a cash basis and strive for economy in costs of production and marketing.

If there is any likelihood of a shortage of labor on your farm; or if the home grinding and mixing of feed, the electric pumping of water or milking of cows would help in emergencies, it might be the part of wisdom not to wait until the emergency occurs to make your installations and do your wiring. Men and supplies may be needed for other purposes then, and their cost be high. This is no time to "lose our heads," or go on spending orgies, but some cool, careful planning may later help us and our government.

George Kable

July, 1940 **ELECTRICITY ON THE FARM** Vol. 13, No. 7

The National Magazine of Rural Electrification

CASE-SHEPPERD-MANN PUBLISHING CORP.

Editorial-Executive Offices: 24 West 40th Street, New York, U. S. A.

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*This is the Frigidaire "Farm 8" showing one of the ten different interior arrangements. It has full 8.3 cu. ft. storage space and 17.1 sq. ft. of shelf area—yet costs only $171.75**

During these long hot days why not enjoy all the pleasures of a genuine Frigidaire? See your Frigidaire dealer today

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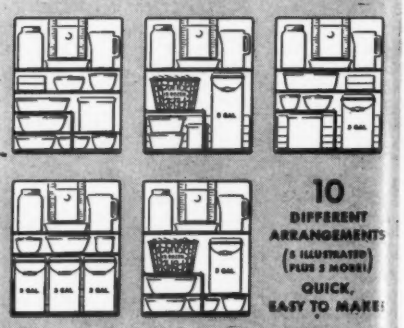
*Prices quoted are Dayton, Ohio, delivered prices and include installation, Federal Taxes and 5-Year Protection Plan. Transportation, state and local taxes (if any) extra. See your Frigidaire dealer for local prices.

LOOK! MAKE YOUR OWN INTERIOR ARRANGEMENTS TO SUIT YOUR NEEDS!



Buy the Favorite Buy Frigidaire

Some Profitable Applications of Farm Refrigeration and Cooling

A Summary of the Many Uses for Mechanical Refrigeration and Cooling on the Farm Today. Fast Moving Development for Farm Profits.

By GEO. W. KABLE

NOT long ago, and even now in many places, cooling on the farm consisted in lowering the butter and milk into the well, carrying the foods down the cellar or melting ice in an ice-box. Mechanical refrigeration, however, is a fast moving development. It no longer amazes us to feel the cool, washed air of a movie theatre on a warm summer evening, to ride in a sealed, air conditioned train, or to buy frozen foods at the local grocery store. The farm—usually years behind the city in adopting new practices—is in this case walking right behind the drum major. The possibilities for using refrigeration and cooling methods profitably on the farm are great. Some of the methods offer especially attractive returns to those venturesome beings who have good judgment and bravery enough to be pioneers in a developing field. The purpose of this article is to tell you briefly of some of the uses for this electrically-made cold on farms.

Milk Cooling

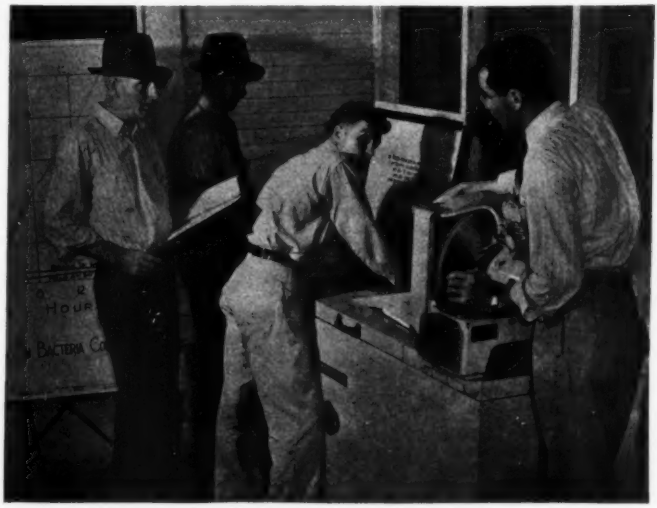
Of all of the money-making uses for electricity on the farm, milk cooling stands out as one of the best. In innumerable instances in all sections of the country, the electric milk cooler has saved enough over the cost of ice, or has increased the price received for milk enough to pay for all of the electricity used on the farm. Furthermore, it insures a uniform 40° temperature, day after day, with practically no attention, which is out of the question with ice. Of course, if you get no premium for cooled milk, then there is no profit in owning a cooler, unless it be for your own satisfaction and health. Where there is a premium on cooled, or low-bacteria-count milk or on sweet cream; or where cooling enables one to sell high-grade market milk in place of "surplus" milk or sour cream, and *to hold your market*—that's earning money. (See May issue, p. 11, for "Cost of Cooling Milk.") Milk coolers for the wholesale dairy are of the brine or water filled tank type, with or without brine agitators. The bottled milk dairies usually use direct-expansion-type surface coolers in combination with dry storage rooms for bottled milk and possibly an ice-can in brine for making ice for milk deliveries. Cooler, room and ice tank may all be operated from one or from two compressor units.

Freezers and Frozen Storage

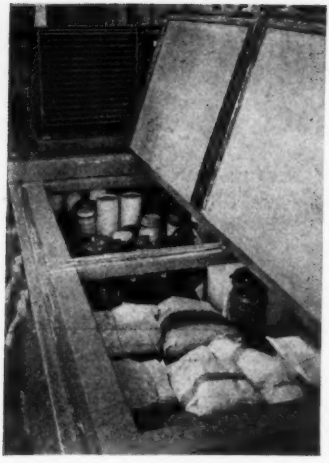
Now we are venturing into new territory. There are possibly less than 100 cabinets of 10 cubic feet or more in size, intended for the freezing and storage of products in frozen condition, on farms in the United States. Frozen fruits, vegetables and meats are not new. The market for them has been increasing tremendously in the past few years. Methods of preparation and freezing are know and are not difficult. (New York Experiment Station, Geneva, N. Y., and the U. S. Department of Agriculture have done much experimental work.) Thousands of farm people and town people, too, have been using frozen storage lockers; and, judging from the rate of building, frozen storage must be profitable to the locker users.

Home freezing cabinets are now being made by at least six different manufacturers. They are operated with motors from ¼ h.p. up. The operating cost need not be high. The Johnson's 36 cu. ft. box (March issue, p. 16), with ½ h.p. compressor, operated for six months on an average of 95 kw-hrs per month. Cabinets are of top opening and front opening styles, and new ones are being offered in many different sizes and shapes for use in kitchens, cellars or wood-sheds. Washington State College, Pullman, Wash., has a bulletin on homemade freezing cabinets.

Mr. H. W. Sterling, a Maryland engineer with much experience in food freezing, has estimated that homegrown vegetables, fruits and meats to be frozen for a family of four will call for 35 cu ft of frozen storage and the box will be about full from August to November and contain about 13 cu ft of products in March and May. That is products for home use. Then there is the possibility of selling some frozen chick-



Texas short-coarsers can hardly believe their own test figures on the small amount of electricity used in cooling milk.



A 1939 farm freezing cabinet on the Dyer farm near Lafayette, Indiana. It contained wrapped fresh pork, beef and chickens and a large variety of vegetables and fruits in glass jars and paper containers. New cabinets may be had with hinged lids or small lift doors made of hard rubber.

ens and turkeys, or a few fruits and vegetables to special trade. A strawberry grower has found it profitable to sell fresh strawberries the year round at his roadside stand. The cheap berries—the best ones—late season berries, are frozen to sell later at a high price. For best results, produce must be properly selected and prepared, and the temperature held constant, i. e., no variation up and down even when held below zero. But, the products are almost like fresh ones. The field is still new—a place for semi-pioneers who can figure.

Lockers vs. Home Freezing

Nearly every meeting of Agricultural Engineers, these days, is beworded with arguments for and against home freezing. The answer is not known. Farmers who do the buying will settle it. Personally, I lean toward home freezing. Here are some of the arguments.

In favor of lockers. No large investment. Can start with one or two and rent more as needed. Special quick freezing rooms are provided. Extra services are available, such as slaughtering, meat cutting and wrapping, sausage making, meat sales, and in some places fruit and vegetable preparation. Uniform temperatures. Less likelihood of spoilage from equipment breakdowns.

In favor of home freezing. Products quickly available when wanted and in emergencies. No sending to locker; no large freezing compartment needed in home refrigerator for temporary storage of foods from locker. Always available for freezing small quantities of fruits, or vegetables which might be wasted. Freezing can be done while products are fresh. No contamination from adjacent lockers. Will use it more. What woman does not prefer to select for herself rather than send some one?

The purpose for which products are frozen will have considerable to do with the choice of freezer. If it is for a roadside stand or for home deliveries, then you will need the freezing and storage facilities on the premises. If you are going to freeze and store 35 cu ft of products for home use instead of canning them, the storage will probably be cheaper at home. If you are going to kill beeves in warm weather, locker storage may be better for you will need a cool room for cooling out the carcas and aging the meat.

In case you do use several lockers for storage, you may find it advantageous to have a 2 to 4 cu. ft. special freezing box at home, or a household refrigerator with a 2 or 3 cu ft freezing compartment for freezing several quarts of berries occasionally, or holding a week's supply from the locker or the threshing crew meat, in case of rain. Frozen products must be used after thawing or they will spoil.

Domestic Refrigeration

The most important thing to say about household refrigerators is that both the price and the current consumption have been cut in half from models available a few years ago. In addition, these boxes are sturdier, have better finished cabinets, more reliable refrigerating equipment and a range of temperatures easily adjustable, which ice refrigerators and earily models of electric refrigerators did not have. Ice making capacity has been increased and the time for making frozen desserts greatly reduced. Some refrigerators have special compartments for storing frozen goods or an enlarged ice cube section may be used. Many of the standard makes of 6 cu ft refrigerators can be purchased this year for $125 or less. In general these low-cost models have the same refrigeration machinery, the same cabinets and the same insulation as the higher priced boxes. The higher priced models have added refrigerator dishes, better shelf arrangement with more expensive shelf finishes, inside lights and special controls and conveniences. Hydrators and other covered dishes are desirable for keeping food in the best condition, especially vegetables, but these can be added. It is best to get a large box, as any of them will probably be too small after you have learned the many desirable uses for electric refrigeration. The inside of the cabinet should be porcelain, but there is little advantage in an exterior porcelain finish over the excellent enamels now used.

In addition to the great convenience and the pleasure of having cold desserts, salads and drinks, there is a money-saving and money-making side to home refrigeration. There is the saving of left-overs, the advantage of buying in quantities, and the possibilities of storing butter, milk, eggs and poultry for sale. In more than one case, the butter money has paid the cost of the ice box and the electric bill.

Fruit and Vegetable Cold Storage

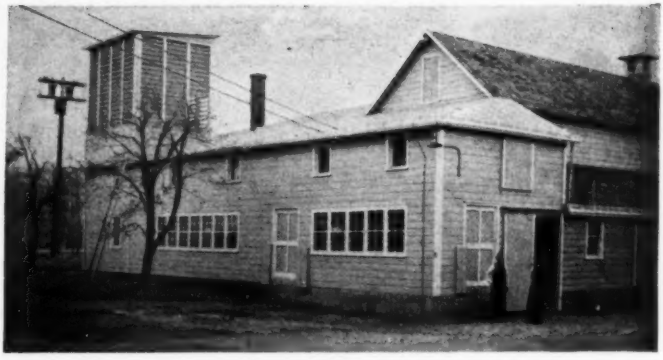
Farm cold storage plants of from 2,000 to 20,000 bushels capacity are becoming fairly common. There are many of them in New York state, Indiana, Virginia and New Jersey. Where barns or other buildings are

A modern locker storage plant at Mt. Vernon, Washington.

worked over into storages, the cost of the plant may be as low as $1 per bushel capacity. Storage costs in the Hudson River Valley, including power, plant investment and depreciation, range from 10 to 13c per bushel as compared with 18 to 23c in commercial storage. In addition, much valuable time is saved in hauling during the busy picking season, and the fruit can be cooled more quickly after picking. Storing gives time to grade properly and to go out and do your own selling when you are not rushed.

In New Jersey, the same cooling rooms are used for vegetables in the summer and apples in the fall. Vegetables sell better at the end of the week. This means short storage periods. Just putting the vegetables in over night crisps them and gives them a better sales appeal. In case of a temporary glut on the market, a week's holding may double the price. This is also true of peaches which usually bring a much higher price two weeks after the end of the season.

Practically all refrigeration manufacturers make equipment for cold storage plants. Many of them have engineers who will design, or advise on the construction of a storage building, and will install the refrigerating equipment. Careful planning and proper insulation saves operating costs.



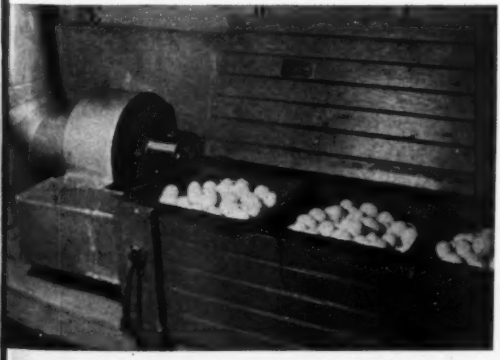
A farm cold storage plant in New York State. It was built in 1914 and the compressor is operated with a 7½ h.p. motor. It has made money for its owner.

Egg Cooling—Egg Storage

A summer egg is like summer milk: it starts deteriorating as soon as it is produced and spoils faster, the higher the temperature. To market high quality summer eggs, they should be cooled as quickly as possible after they are laid. Animal heat may be removed by storing in caves or cellars; better by cooling containers with running water and fans; still better by desert coolers in arid climates; and best with mechanical refrigeration. A metal container with cold water trickling over it and a fan blowing on it to evaporate the water is a reasonably good cooler for a few eggs. Desert coolers have been satisfactory in the Great Plains and Pacific Coast regions where the air is dry enough to evaporate water quickly. In some western states desert coolers have given a moldy flavor to eggs, so one must be careful. Any household refrigerator of large size, cabinet type dry cooler or walk-in farm refrigerator makes a good egg cooler.

Egg storage is an entirely different matter from egg cooling. Eggs in cold storage increase in price with off-season fluctuations. They should be held at constant temperature and proper humidity and it is best not to store them in the same room with other products. Cold storage rooms similar to fruit rooms, or large walk-in boxes, described below, are satisfactory. The U. S. Department of Agriculture has issued a 52-page Circular No. 73 on "The Cold Storage of Eggs and Poultry," which gives details of plant, holding temperatures, etc.

Fresh eggs may be broken into containers and held in frozen condition for winter use. Frozen storage is much simpler than cold storage of eggs in cases.



One method of cooling eggs. The small blower forces cold air through the wire baskets of eggs placed in the cabinet. It could be done also by drawing air through the eggs and around ice placed in an end section.

Poultry Cooling and Storage

Freshly dressed poultry is usually cooled in cold well water or refrigerated water. Short time storage for week-end deliveries or for roadside marketing may be in any type of refrigerator at about 40°. Most satisfactory storage is in frozen condition. Fowls may be frozen whole or cut up ready for serving. The same equipment is used as for other product freezing. With freezing equipment, poultry may be killed and dressed when in proper condition, regardless of markets, and sold when prices are right.

Refrigeration for Incubation and Brooding

In warm climates where broiler hatching and brooding is done in the summer, it is not uncommon to use refrigeration along with the heating system. Some mammoth incubators are now equipped with refrigeration units which come into action automatically if the air temperature or animal heat of hatching chicks brings the temperature to a critical point. By supplying a larger refrigeration plant, this manufacturer can make the incubator into a cold storage plant out of hatching season. It is not advisable to attempt this with an incubator not made with that in mind as it may ruin the cabinet.

Meat Cooling and Curing

In the South, where most of the meat consumed is cured pork, there is an enormous wastage due to the souring of meat during warm spells after butchering. Large general re-

General farm refrigerator at rear. It was built by the boys in the Belmont, Mississippi, vocational agriculture class in high school. W. J. Jacks was instructor. The compressor unit is on the floor at right.

frigerators held at 40 degrees have been used very successfully during the past four or five years in preventing waste. Meat takes the sugar cure much more dependably when held at a constant temperature. Year around winter conditions also permit the slaughtering of hogs when they are ready regardless of "cold spells." This cold storage is also giving the people in the South an opportunity to have fresh pork and lamb in the summertime, which they have not had previously. The desirable type of box is the general storage box described below.

General Farm Refrigeration

The general farm refrigerator comes between the kitchen refrigerator and the large cold storage room. It may have a capacity of 16 cu ft or be a room 10 by 12 feet with 1000 cu ft capacity or more. It may be a single temperature box or room held at 40 degrees, or it may have an inner compartment used for making ice, freezing foods or holding them in frozen condition. Several manufacturers are now making these two temperature boxes in sizes from 10 cu ft up to the kind you walk into. Some of the larger boxes are shipped knocked down to be assembled after reaching the farm. Where the boxes are built in place on the farm, it is desirable to have an aluminum and asphalt painted cork inside wall and ceiling, with cement over cork flooring.

The general farm refrigerator is a versatile piece of equipment. It may be used for overnight or short period storage of fruit and vegetables, or for winter storage of apples and pears for spring use. It may be large enough to hang up a hog or beef for a summer's meat supply, and will take care of the cooling and short period storage of a number of cases of eggs. If used in combination with a surface cooler, it will provide storage for milk in cans or bottles.

Boxes provided with inside freezing compartments may have arrangements for making moderate quantities of ice. They also permit an excellent combination of cooling and aging beef in the large room and freezing it for storage in the inner compartment. This precooling and aging compartment is quite necessary where beef is killed during the summer months. Large two temperature boxes of this type are very new, and there are probably not more than 25 of them in use in the United States on farms at present.

Desert Coolers

Desert Coolers are cabinets or frame-work on one or more open sides of which is hung burlap or towelling which dips into a pan of water on top of the cabinet. The cabinet is placed in the open where it has free air circulation about it, and the evaporation of water from the towelling or burlap cools the interior of the box.

These evaporative coolers are effective only in hot, dry climates. Where humidities are high there is little evaporation and, consequently, little cooling. In the Southwest, desert coolers are used for storing food and cooling eggs, and adaptations of them have become popular for room cooling and even for the cooling of poultry houses. They are not dependable in the Middle West and East.

Cooling with Water

Milk cooling with water needs little comment, except to say that with modern electric pumps, it is no longer necessary to depend on a spring. Water cooling of milk is a poor substitute for refrigeration, however, as well water is seldom colder than 50 degrees.

In recent years, some effective room cooling has been done with well water where the temperature is 55 degrees or colder. The method has been to pump the water through a large automobile or tractor radiator placed in the living room, allowing the water to flow out through a hose for irrigating the garden or lawn. A large fan is placed behind the radiator for circulating the room air through the cooling coils. Room air has been lowered as much as 30 degrees on hot summer days by this method and moisture removed, making it less humid.

Attic Fans

With the advent of air conditioning, attic fans are becoming popular for inexpensive house cooling. The principle of the use of the attic fan is to draw the warm air out of the house at night and replace it with the cooler air from outside. By cooling the house and removing this warm air, it may be made very comfortable for sleeping and reasonably comfortable during the following day if the doors are kept closed and shades pulled. Insulation on the house, and particularly under the roof, helps considerably. The fan may be placed in an attic window and the stair door kept open so the air may be drawn from the attic and the rooms below and forced out the window; or the fan may be placed in an opening through the ceiling of an upstairs hall and the air driven out of open attic windows or louvres. Rooms to be cooled should have the windows opened when the fan is started, so that cool air will be drawn in.

Fans for this purpose are not the ordinary home or ventilator fans. They are large fans, perhaps 2 feet across and designed especially to move large quantities of air. The motor for operating them may be ⅛ or ¼ h.p.

An adaptation of this same system is used in the fall for cooling potato storage cellars and similar storage rooms.

NEW JERSEY STRAWBERRIES PAY RETURNS ON IRRIGATION

THE year 1930 was a dry one in New Jersey. Sickler Bros.—Harry, Ralph and Melvin—were in the truck gardening and strawberry business, and had a bad year. So in 1931 they had overhead sprinkler irrigation systems installed and were ready for drought. The pumping equipment consisted of 20 h.p. motor driven centrifugal pumps. The irrigation helped greatly, but in 1935 an engine salesman persuaded them to take out the motors and put in gas engines. The engines were used two years, then Harry Sickler installed the modern 15 h.p. deep-well electric turbine pump shown in the illustration. After seeing the results of that pump, the brothers put in one like it and now they are all using electricity again.

Unirrigated vs. irrigated.

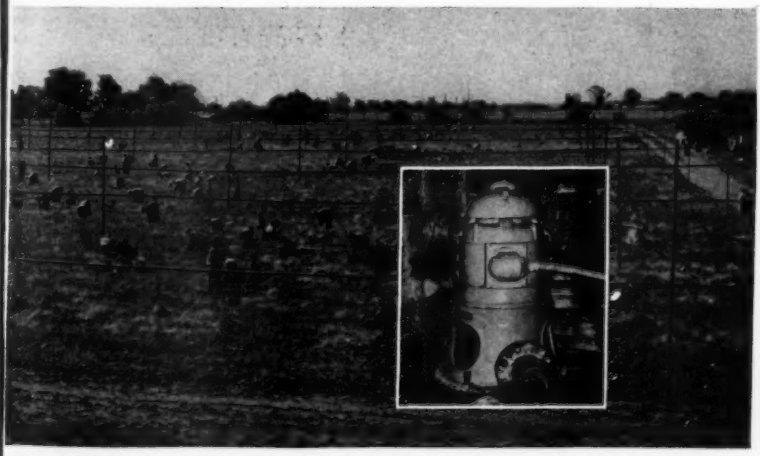
The Harry Sickler irrigation system for 20 acres of strawberries cost about $300 per acre. At six percent interest, that means $18 per year plus operation and upkeep. In 1939 frost injured the berries. Operating figures are available, however, for 1938. In June he used 1080 kw-hrs to pump about 1,500,000 gallons of water; in July 1530 kw-hrs for 2,750,000 gallons; and in August 380 kw-hrs to pump 600,000 gallons; a total of nearly five million gallons costing $137 for power.

The costs, while important, are only one side of the story. It costs General Motors a lot of money to make automobiles. First of all, Mr. Sickler thought enough of his irrigation results to spend another $400 this year for a 3-inch main to carry water to an unirrigated 8 acres, which has been set out in berries. The irrigation earns him enough extra to pay interest, operation, power, upkeep and a profit on his undertaking.

Mr. Sickler grows a late berry. It is a good variety and brings a good price, but in four years out of five it must have irrigation to produce well; and in the fifth year it will do much better with irrigation than without. In 1938 the average yield of 20 acres of irrigated berries was better than 150 crates per acre. The same year, his 2½ acres which were unirrigated but otherwise had the same treatment, yielded a little less than 50 crates per acre. And that is only part of the story. Perhaps the picture tells the other part best. The irrigated berries were much larger and of better quality. They were easier to pick, easier to sell, and brought about twice as much money.

New Jersey has no monopoly on irrigation for strawberries and truck crops. Similar results have been obtained in the Middle West, South and Far West. Plants obtain their mineral nutrients from the soil in a water solution. When the solution becomes too concentrated due to lack of soil moisture, the plants cannot use it and stop growing.

Note.—Pictures and facts about Sickler Bros. results supplied by A. J. Balliet and M. O. Whithed, Atlantic City Electric Co.—Ed.



Picking acres of berries on the Harry Sickler farm. Irrigation pipes overhead. (Insert) 15 h.p. deep well turbine pump with vertical shaft. The well is 125 ft. deep and pump fits into a six-inch casing. It is rated at 300 gallons per minute.

WE SOLD OURSELVES A WATER SUPPLY

By H. R. ALLEY
Shermer Road, Northbrook, Ill.

Besides being a burden on the back of a conscientious homemaker, the water carried from the well was contaminated with harmful bacteria.

ABOUT five years ago, we purchased a small farm about 20 miles north of Chicago. Our idea, at the time, was to have a job in the city, take advantage of country living, raise berries, vegetables, fruit, and poultry, and sell whatever we could to the local trade.

Bit by bit we repaired the buildings, painted the porches, set out trees, patched roofs, and improved the lighting system. Very slowly but very surely, we built up our trade at our little roadside market. Grapes, cider, art goods, and even inventions were sold over our little open-air counter in the summer time. We found that we were rather nicely located about halfway between prosperity and poverty, yet there was something about our little farm that was missing.

We Skimped on Water

After a hard day's work in the garden, we often came to the house and had to skimp on water. In the winter time the cistern ran dry at the most crucial moments. Our well, which was dug some 40 odd years ago, was contaminated with bacteria which we found were harmful to human beings. We finally decided that in not having running water we were depriving ourselves of an important necessity and not a luxury.

A friendly well driller always made it a point to call on us about three times a year, but somehow he never convinced us of the importance of having an ample supply of running water in our home. He didn't tell us that more moisture would help our strawberries to grow in greater abundance and increase sales at our roadside stand. Our attention was never called to the fact that a shortage of water puts an extra burden on the back of a conscientious homemaker; that sanitary drinking water is necessary for maintenance of good health and the reduction of annual doctor bills; that infrequency of baths takes away one's physical energy and vitality; that a new well and an entirely automatic water system could be financed as simply as a new automobile. In spite of this man, who never got around to selling us on the merits of having water in both laundry tubs instead of one, we ordered a well drilled and a brand new jet pump installed. The cost was $227 for the well and about $160 for the electric water system. The pipe materials ran the total cost up to $400, and now we have running water everywhere.

An electric motor is a rather decent sort of helper. It sings a cheerful tune, never grumbles and asks for no increase in wages.

In this country, it seems to us that our problems and our wants are quite a bit like other people's, and that when the individual's problems are solved, the nation's problems will be solved . . . not before. This little story about a problem in the home is important to us and it no doubt is just as important to others; that's why we are bothering to tell it. If we have more pure water, easily obtainable, the chances are we will be healthier.

Electric Motor Real Helper

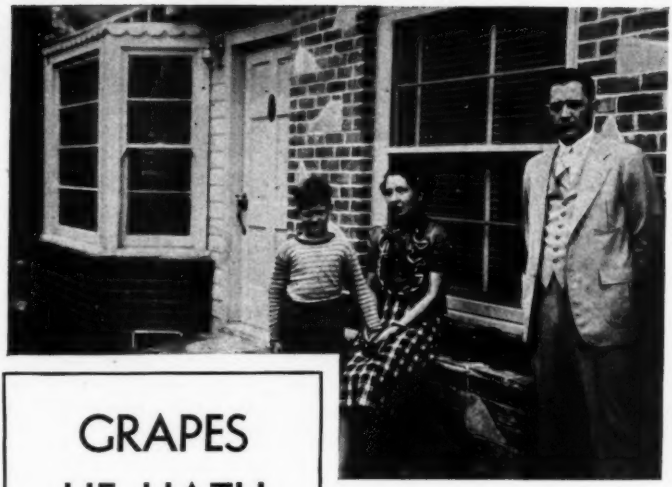
When one stops to think about it, an electric motor is a rather decent sort of helper, too. It goes about its work singing a cheerful tune, never grumbling, and never asking for an increase in wages.

The first thing to consider about a water supply is: is the water safe to drink? If we have had some unexplained illness in the family, was it due to bacteria laden water? Many people do not know that their State Health Department or Agriculture College will test their water supply free of charge. Too many people still gamble with health in the country. They also gamble with the antiquated idea of putting out farm fires with a bucket.

Private Fire Department

City people pay for fire protection in taxes to support the local fire departments. On the farm we install our own private fire departments. Both the available water supply and the capacity and dependability of the water system are important when the cow shed is on fire. Permanently installed water lines to all of the farm buildings may be a very good investment when the bins are filled with grain on a windy night.

We like our water system and we hope you, too, will have your water tested for bacteria, and that you, too, will find that washed vegetables sell more easily and at a higher price.



Mr. and Mrs. Thomas and their boy in front of their electrically-equipped home today. Every bit of this modern home was built by Mr. Thomas with his own hands, from a beginning of less than $4 four years ago.

GRAPES HE HATH

Security on the Land for the Migrant Farm Worker—And He Has Electricity

By EARL BURKE

SEARCHING for new frontiers, a huge migration of dispossessed farm families has poured into California during the past several years. During that period at least 250,000 newcomers also migrated into Oregon, Washington and Idaho. The majority of these wanderers are fine American stock, forced by prolonged droughts to leave their homes in the Dust Bowl states. Others were "tractored off" Georgia, Alabama, Mississippi and Tennessee farms and came west to follow crop rotations. In such numbers did these homeless migrants flock into California that they swamped local relief resources and became a national problem. The plight of the "Okies" in the California migrant camps during 1937 has been dramatized in John Steinbeck's controversial "Grapes of Wrath" and pictured in the movie of it recently released.

But there's another side of the migrant picture, that of the distressed families who received a fresh start on privately-administered small farm or garden home communities. Among these units now successfully operating in California are Shore Acres, 2500 population, near Redondo; Wasco, 6000 population, near Bakersfield; Greenfield, 7000 acres and 700 population, near King City; Sunland-Tujunga, 6000 population, near Hollywood, and approximately fifty lesser-sized similar undertakings. In size these home sites range from 20 and 40-acre farms at Wasco to garden acre homes at Shore Acres.

These rural colonies for homeless families must have good soil, obtainable at reasonable prices, and be located only where seasonable or part-time employment is available, perhaps on nearby farms, or in fruit packing and other agricultural industries.

Shore Acres Has Electric Service

One of the most successful of these communities is Shore Acres, where 600 former migrant families are today self-sustaining citizens. They live in electrically lighted homes, where modern electric appliances bring many comforts and conveniences that they never had before in their farm life.

Shore Acres had been distressed property held by a Los Angeles bank. A community development organization headed by M. V. Hartranft, retired agricultural editor and social engineer, was permitted to loan an acre of good garden land to any homeless family that would go on the home site, dig a cesspool and erect some temporary shelter. The homesteader paid only the interest charge of $2.00 a month, without any other land payment, for the first five years. Where families were penniless the Salvation Army gave them groceries, paid the water connections and interest charges until they became self-supporting.

These settlers pioneered like their forefathers to get a roof over their heads and raise their own food, including chickens, squabs, bees, fruits, berries and vegetables. Some families also raise pigs, hosed off daily in sanitary pens. Instead of ordinary shade trees, olives, avocados and carob trees are grown. An avocado tree can produce a thousand or more avocados a year, each having a food value equal to a large lamb chop. The carob pods, or St. John's bread, have high sugar content and have had many food uses for hundreds of years in Mediterranean countries. In place of geraniums and other flower borders, the available ground is planted in asparagus, cauliflower and other vegetables. Families raising food surpluses swap with the neighbors.

A typical example is William W.

Side view of the Thomas home. Room on extreme end to left now serving as garage was first a one-room cabin covered with tar paper and roofed with palm leaves.

Thomas, who drove in from Illinois with his trailer one Monday four years ago. In his pocket was less than $4. He got a job and went to work next day, leaving his family living in the trailer. Mrs. Thomas planted the garden, parking the baby in a packing box nearby. As Mr. Hartranft explains it: "That girl had been brought up on a farm and she told me afterward it felt like heaven to get hold of a hoe handle and help to provide for her own home.

"With his first wages Mr. Thomas came home with a bag of cement to start the cement floor. The following week he bought some low-priced lumber and began work on a one-room garage-cottage. To save money the exterior was covered with tar paper fastened with lath. For temporary roofing he used palm leaves, like they do in the South Seas where they have ten times our rainfall. Indoors the room was lined with grocery store cartons, trimmed to fit with a safety razor."

Today the Thomas family live in the charming bungalow shown in the illustration. Mr. Thomas built every bit of it with his own hands. What he didn't know about building, some neighbor would show him. The home is completely equipped with modern lighting and electric appliances, including washing machine, refrigerator, radio and other labor savers.

Bank Says Investment Good

At the end of five years Shore Acres settlers may begin paying off their property mortgage. The Los Angeles bank reports that it has never had to institute legal action against any homesteader there.

In a recent interview, ex-President Herbert Hoover said that the solution of the migratory farm labor problem is a system of small farm colonies. Mrs. Eleanor Roosevelt during a recent California visit also told the press that "these people want to go back to the land and that is where they belong."

A non-profit organization to help homeless families get back on the land has recently been organized called Social Adjustments, Inc., with a directorate including Rev. Julian C. McPheeters, Pastor, Glide Memorial Church, San Francisco, Col. Vernon R. Post, Chief Secretary, the Salvation Army, San Francisco, and Mr. Hartranft. More farm colonies are being established at strategic places in California, three in the north and probably two or three additional in the central and southern areas.

California is not inviting more transients, but it is striving to ease the lot of those who are there.

TENANT FARMER "CHARGES" LIGHT BILL

By KENNETH B. McPHERSON
Asst. County Agent, Fayetteville, Tenn.

THE fifteenth of the month came again. It came with that suddenness that all dates come when a bill is due.

It was springtime and Woody Rush of Lincoln County, Tennessee, realized that it was going to be more difficult to pay that monthly electric bill during the Spring and Summer than in the Fall and Winter. He was about to make a new crop and there would be little cash until cotton could be picked, ginned and sold in the Fall. He must buy seed, pay for hired labor and meet other expenses for the operation of the 78-acre farm he was renting from the man who lived in town.

Electricity—Part of Living

Woody knew that he could not do without his electric service. He had grown accustomed to it during the past year. It was part of his living. The refrigerator was keeping meat, milk and vegetables in perfect condition. He was using the ice it made and liking it. The lights were fine to read by and the children seemed to study better. The washing machine and electric iron were taking loads of hard work from his wife. She also liked her electric sewing machine. The radio, fan and other small appliances gave him comfort and entertainment. No sir, electricity was in his house to stay!

When farm work was not so pressing, Woody did a little radio repairing as a side line. The majority of radios that came to him were battery operated. Those batteries would run down and be sent to town to be charged. He had taken a few of them in himself. Also automobile batteries ran down. The nearest battery charger was in town, eleven miles away.

Rush thought he might have something here. He would just buy a battery charger himself. He could get the business in the neighborhood. It would not take much time and the revenue might pay his electric bill. Yes sir, that battery charger could pay his electric bill and do it while he was asleep.

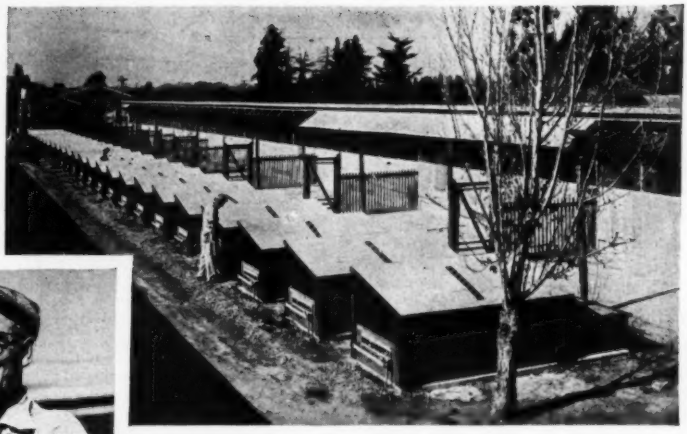
The battery charger was installed on his back porch in March, 1939. He charged 160 batteries the first twelve months, for which he received 50c each, or $80.00. This has paid his monthly light bill and over. It has averaged $4.00 per month since the battery charger was installed.

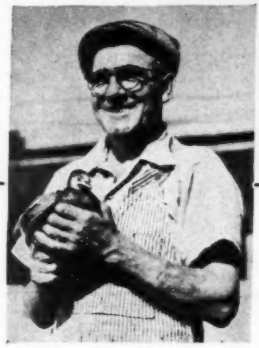
Woody says he is "charging" his light bill and it is a good account.

Woody Rush with radio repair equipment. Battery charger is on the wall with two batteries being charged on the bench beside him.

Right: A row of brooders at the Brown plant. Each brood is separate but close enough to be easily cared for. Electrically heated brooder is in low section at right (see first house). The higher shelter covers the wire-floored sanitary runway.

Below: This is Mr. Brown with one of his charges. The poultry business does not seem to have him downhearted. He's been "through the mill."





ELECTRICITY BROODS A POULTRYMAN

By MARY SHOOP

Southern California Edison Company

NEWSPAPER people have a saying that goes something like this: "There's no news in a dog biting a man. But when a man bites a dog, that's news!"

In other words, news is something out of the ordinary, something with an unusual twist that makes it worthy of notice. Judging by this standard, the electrical features of Frank Brown's poultry ranch, located several miles from Orange, Calif., are news. Mr. Brown has been in the business of raising poultry for fifteen years. Early in the spring of 1939 he sold out his stock and equipment preparatory to spending five months in England, his native country. When he returned last September to resume operations raising broilers and fryers, he considered all types of brooding. He weighed them all, pro and con, from every angle. Then from the depths of his broad experience he chose electric outdoor brooding.

Prefers Electric Brooders

There's news in that for every farmer—news in the fact that a man who has been in the poultry business for many years, during which he used practically every type of brooding, prefers electric brooding to meet the highly competitive conditions of this modern day.

Let's see what Farmer Brown's reasons are for his choice.

"Electric brooders give a more even heat," he says. "When you turn the temperature control, you know the heat will stay where you want it. This saves a lot of work, for a person doesn't have to keep watching brooder heat or get up at all hours in the night to see if chicks are warm enough. After we load a brooder, we never worry about the temperature, because we know that electric heat stays right.

"Good sanitation was another reason why I chose electric brooding. Raising chicks on wire lifts them above droppings which may carry disease. The outdoor type of brooder is very easy to clean. It is easily dismantled for hosing and disinfection. Electric brooding has been so successful that our mortality is less than 2%.

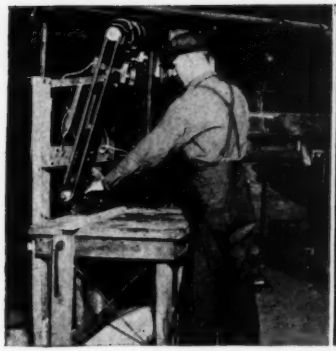
"In my opinion, a poultry business is as good as its method of brooding. You have to have a good brooding method or all the pedigreed chicks in the world won't bring you success. Brooding should be dependable, efficient, sanitary and economical. I find all these things in electric outdoor brooding."

Standing in a straight row like soldiers at attention are 24 outdoor brooders on the Brown farm. Each has a capacity of 150 day-old chicks, making it possible to brood 3,600 chicks at one time. Brooding is carried on about nine months in the year, with a several months' layoff in the summer. In addition to raising broilers and fryers, Mr. Brown also is building up the laying stock of his farm, which occupies three-fourths of an acre in the midst of sun-flooded Southern California farm land.

Like the postman who went for a walk on his day off, Mr. Brown, while in England, took note of poultry raising methods. He returned thankful that he was doing his farming in the United States where modern equipment and modern methods reduce work and boost profits.

"They seem a hundred years behind the times in some things," comments Mr. Brown. "Or maybe it is, as they think, that we are a hundred years ahead of the times!

"Farming methods change slowly there, and in many cases what was good enough for father seems good enough for son. Brooding is done with coal heat generally. Stock runs mostly to heavy breeds, such as the Sussex. Portable laying houses, of the Munson type, are used a great deal. Wet conditions due to heavy rainfall complicates poultry raising in England. Feed is very high in cost, and fresh eggs, due to the war, sell at sky-high prices."



ELECTRIC FUN THAT GETS CHORES DONE

By GEORGE R. HARRISON

THERE is scarcely any little job on the farm that can't be done with electricity, says Chester Gilson, young farmer near Hebron, Indiana. Not for years has Mr. Gilson had to pump up tires by hand. Instead, he has used an automatic pressure tank for this purpose. The family car, the farm truck and the farm tractor have their tires inflated in a hurry and easily when such service is needed. In the garage, against the wall, is the little pressure tank, its motor, and automatic air pump. Let the air pressure get below a certain point, and suddenly the pump starts, and so there is always enough to feed out through the air hose into the tires. And this air hose is one long enough so that its nozzle end can be carried a long way outside of the garage. The picture shows the outfit against the wall. No extra room is needed for it.

Nor did Mr. Gilson crave cutting boards or timbers with the old-fashioned, hard-working hand saw; so in spare time he built his power saw. You see it in the picture with its maker demonstrating it. Through the winter months it is kept in the warm basement that is a veritable work shop, anyway. But in warm weather it can be taken out of doors, into the barns, or almost anywhere, for on the Gilson farm there are many convenience outlets. For moving around from place to place, the back framework, with the mechanism, can be detached easily from the bench part by taking out some bolts that hold the back and bench together.

Another convenience, home built, on the Gilson farm, is the combination electric forge and grinder. Again, the picture gives the idea. Mr. Gilson assembled this on an old washing machine stand that moves on ball bearing rollers. This outfit can also be moved from basement to outbuildings and back again when necessary, and quite easily. The motor for one of the units in this setup is the one that used to run the old washing machine.

Electricity is the chore boy in more cases than three or four on the Gilson farm. As a parting shot let me tell you about the electric pump that not only pumps the water for cooling the milk, but that also stirs the milk to speed the cooling. From the pump in the well house Mr. Gilson has passed a shaft operated by a crank through the wall into the milk house. Over the cooling tank four arms project from the shaft, and these arms go up and down as the pump works. On the end of each arm Mr. Gilson hangs a common milk stirrer, one for each can in the tank. When the pump runs, up and down go the stirrers and the pump keeps pouring cold water from the deep well through the cooling tank.

With Chester Gilson the use of electricity is fun that gets chores done.

Roaster for Roadside Hot Dogs

Up near Hartford, Connecticut, John Zima who operates a golf driving range and refreshment stand is using an ordinary household electric roaster to keep "hot dogs" and rolls always hot and ready to serve. The idea might be used at any roadside stand where there is a good business,—or to help develop a good business. Mr. Zima says: "The possibilities are limitless, and I cannot say too much for the roaster. Every time we sell a 'frank' we sell a bottle of pop or some other drink. It gives me a chance to work up a nice additional business."

Bells Plump Ducks

John Dodd, a duck rancher of Lincoln Park, N. J., has equipped his ten duck pens with electric bells that ring automatically at 3:30 every morning. The bells arouse the ducks whose first thought is generally for something to eat and drink. Thus the feed hoppers left full in the pens the night before are picked clean when Mr. Dodd goes around early next morning replenishing and washing the hoppers. Mr. Dodd says the bells mean a big saving in feed bills (most expensive item in duck raising) and that his ducks take on an average of half a pound more weight per month than when he had no bells in the pens. He burns one forty watt bulb all night in each pen.

RAYMOND DONOVAN

For Home Safety

Examine all chimneys periodically. The principal causes of dwelling fires are defective chimneys.

Cracks or openings in chimneys should be sealed up immediately.

A good way to clean a chimney is to close all lower openings, then put sand or brick in a burlap bag, with a rope tied to it, and work the bag up and down until the chimney is free of soot.

Every chimney opening out of a wooden roof should have a spark arrester.

All unused chimney openings should be closed with metal flue stops.

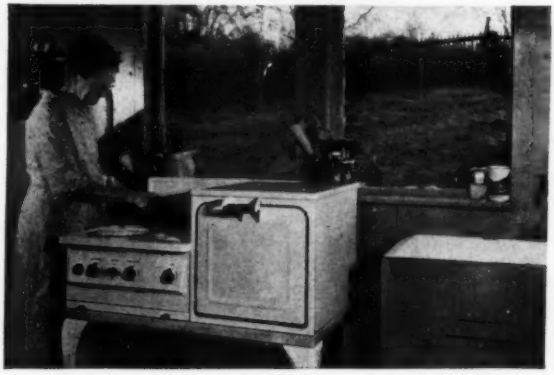
Electrical HOUSEKEEPING

Conducted by GAIL MEREDITH

HOT FIRES FOR COOL KITCHENS

"YOU can't cook meals by looking at them," my Aunt Sally used to say. "If you're going to be a cook a man can depend on, you'll have to learn to stir around and get you a good hot fire quick."

Aunt Sally wasn't one to quail before the fact that good hot fires meant blistering hot kitchens, too. She just accepted that along with icy bedrooms in winter and a well many rods from the house.



The fire's hot—but the kitchen's cool.

She could always build a fire. Her deft hands poked kindling and chips into her black iron box of a stove, laid on the wood and sprinkled the whole with a little coal oil. Not even in her wildest dreams could she have imagined a cooking device that is practically automatic and that is built right into a work table and a storage cabinet combined. She never heard of a cook stove that wasn't backed up by a wood box or a coal pile, but depended for heat on the electric current traveling the wires that connect it to the electric lines that pass the house.

So she never knew that there was going to be a way to have a good hot fire in a cool kitchen.

Perhaps I'm stretching a point to say cool, because after all, some days the weather outside is going to make short work of kitchen coolness even if nobody lifts a hand to get breakfast or do the ironing. But that's as may be. The thing I'm talking about is getting a hot fire that will cook the food and still leave the cook comfortable.

When Aunt Sally's daughter's daughter Sarah comes downstairs to get breakfast on a hot muggy July morning, she rushes into the kitchen humming "South of the Border" with little extra trills of her own.

Stepping over to the range she lifts the cover of the well cooker at the back and sniffs the steaming kettle of oatmeal she started late the night before. She puts the cover back, opens a drawer of the range to get a frying pan, and turns a switch to build a hot fire for bacon. While the bacon is getting started, she measures the coffee and water into a coffee maker and plugs it into a convenience outlet near the table. She sets the toaster near her plate all ready to give her an extra hot fire for toast when the family is ready for it.

Sarah can set the table, get out the butter and cream, cut the bread and arrange frosty red raspberries in dishes before it is time to take up the bacon and turn the switch to lower the fire as she breaks half a dozen eggs into the spider.

She never sees the fire that heats the water that comes from the faucets. Two electric heating elements inside the tank of her water heater supply just enough heat to keep the water hot.

Five fires for breakfast. Quick hot fires and a low, slow fire, but none of them warming up the kitchen or the family.

For the cook without an electric range, there are still plenty of ways to do the cooking without fire. She can cook the cereal in a small insulated electric cooker and get the rest of the breakfast right at the table. It takes a quick eye and a deft hand

Getting dinner in the roasting oven. The pin-it-up electric water heater over the sink will furnish hot water for dishes.

but those are skills all housewives develop.

She watches Junior while he makes the toast; she stops the coffee maker at just the right moment; she takes the eggs out of the egg cooker when it stops steaming; and she fries the bacon on a flat sandwich grill while the rest of the family eats oatmeal.

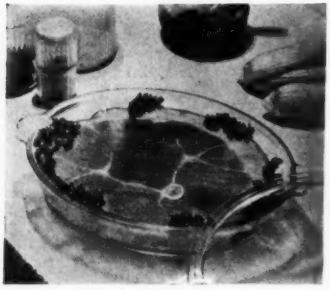
Of course one very, very good way of getting around hot kitchens is to stay out of them. And modern cooks can do that, and take their cooking right with them. If there are plenty of electrical outlets on a shady convenient porch there is no reason why a woman can't cook and serve meals there as well as in the house.

And after the eating is done, even if there is no water heater in the basement, no one has to go out and build a fire to heat water for dishes. An electric tea kettle will do that.

For women who would like to have a try at cooking with electricity and for women who have electric ranges and know how convienent they are and want another oven, the roaster ovens are an easy way to cook without fire.

If you had one you could bake or broil or steam on it; you could roast or boil or fry; you could even can in it. You can plug it into an electric outlet in the kitchen, in the dining room, or out on the porch. You can take it on picnics and to pot luck suppers, and you can depend on it to give you a hot fire to get dinner on a hot day—but it won't heat up the kitchen doing it.

With a roaster oven in your kitchen, long 'bout the middle of a busy morning you could take a slice of ham from the refrigerator and put it



in the meat pan of the roaster. Top it with a little prepared mustard, some brown sugar, stick in a few cloves and cover the bottom of the pan with milk. Along side the meat put a dish of scalloped potatoes and leave room for a cherry cobbler to go in during the last hour of the cooking.

Up in Door County where Wisconsin raises its cherries they make a cobbler this way:

Mix one cup of flour, two and a half teaspoons baking powder and a half a teaspoon of salt. Work in two tablespoons of shortening. Add about half a cup of milk, just enough to make a dough that is soft enough to stir. Put two cups of drained unsweetened cherries and one cup of sugar in a baking dish. Then spread the dough over the cherries, making several cuts in it here and there for the steam to escape. Bake about three quarters of an hour to an hour at 375 degrees and serve it hot with sugar and cream.

Upper: Shut for sandwiches, open for a double grid to fry on.

Lower: A hot fire for a late snack.

Ironing Heats House, Too

Since we have to iron between meals even in July, ironing fires concern us too. Any one knows that it takes quite a fire to keep irons hot for a big ironing. But electricity can go that fire one better. An automatic electric iron is very, very hot when you want it to be, or just barely warm when you're pressing or ironing rayon—or anywhere in between to meet the needs of all the different materials in the laundry basket. Turning a switch on a plainly marked dial controls the heat of the iron.

You can't cook a meal or iron a shirt by looking at it. Aunt Sally was right. You need a good hot fire. But since modern invention has contrived to break up that fire into usable heat that we can apply where we want it and in just the amount we need, we've learned to outwit the weather in July. We can still have cool kitchens and hot fires.

Making Kitchen Curtains

ONE place in the house where you can let your imagination run wild is in the kitchen. It is a room that never can have too much color and gaiety. You can choose tomato red, carrot orange, potato brown, celery white, beet red, parsnip yellow, lettuce and parsley green. These colors can be painted as trimming on chairs, tables, moldings, doorknobs and windowsills, and then matched with curtains and curtain trimmings. Use one color or a combination of several. Then, if you buy any new kitchen utensils, get colors to match.

Use Bright Materials

You spend so much of your time in the kitchen that its bright and cheerful surroundings have a marked effect on your temperament. So keep your curtains light and let the sunshine in. And if you make them bright you'll have "sunshine" even on a rainy day.

An unusual and inexpensive curtain can be made of unbleached muslin. To cut the curtain, measure from rod to sill, add 6 inches for hems. Turn in ½ inch on each side, then turn in again, making a 1 inch hem. Turn in ½ inch on the top edge, then turn again for a 2-inch hem. Turn in ½ inch on the bottom and stitch by machine. Turn up 3-inch hem and stitch by hand. This bottom hem can be easily let down if any shrinkage should occur after laundering.

Make bands of red or any other bright color in colorfast fabric, by cutting strips 11 inches long and 2½ inches wide and cut to a point at each end. Stitch them together, making a ½-inch seam. Leave a 2-inch space open in the center on one side; turn the band through this. Press.

Place the bands on the top edge of the curtain, making a loop. To do this, first stitch one pointed end, with point down and about 1½ inches from the top edge. Baste free end of band directly under on the wrong side of the curtain. Stitch from the right side, catching the under end and sewing exactly over the first stitching. Thus the loop. Place one loop on the very ends at the top of each curtain. Then space other bands at about 2 inch intervals all the way across the top.

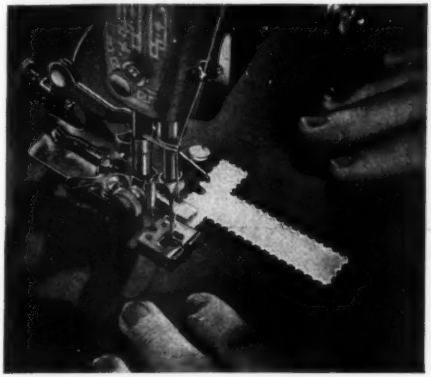
In each corner of each curtain applique a monogram, an apple, a bird or a bunch of carrots, in the same material as the band loops. Trace the outline on the cloth; cut it out, leaving ¼ inch for turn under. Baste under this ¼ inch edge,

then baste in position on curtain. Use the Zigzagger attachment on the sewing machine that makes applique work so easy, and stitch all around the design.

Slip a pole rod through the loops. Using a pair of curtains for each window, let them hang easily at the sides, but not covering the window (which would block out the light). These curtains can also be made of organdy or another sheer fabric; place them together at the center of the rod and tie them back with bands matching the loops.

This curtain is easy to launder as it has no ruffles or other fancy trimmings that take so long to do. Yet they do have the fullness and detail so desirable for a nice appearance. You can whip them up in a minute on the modern electric sewing machine and yet give them a look of fine handiwork with your sewing machine attachments.

LAURETTE M. DESMET



It's easy to do applique work with the zigzagger.

REFRIGERATOR DISHES

(Winning Letter for April Contest)

"If dishes grew on bushes, and picking was free, I would pick me a matching set of many pieces—a pitcher or jug, tall and narrow enough to fit the top shelf of the refrigerator, and with a capacity of at least three quarts.

"One dish four inches high and wide, twelve or fourteen inches long for our butter, two two-quart dishes four inches high, three of the quart size for milk, four of the pint size, and as many half pints.

"All dishes except quarts and half pints to be oblong with slightly rounded corners to clean easily, and perhaps quarts might be also, but they must not be round.

"The material must be transparent, either clear or lightly tinted, but the contents must be plainly visible. There must be close-fitting covers, and if they could be oven proof, I should certainly like that too."

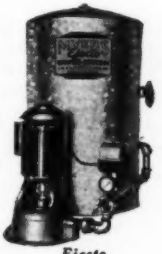
MRS. G. W. TILLAPAUGH
R. D. 3, Mexico, N. Y.

THE good advice voiced by the young man above, might well be soundly repeated on thousands of farms. A reliable MYERS Water System brings not only comfort and convenience to the family, plus protection for health and property, but increased productivity as well. Nothing will more certainly raise the standard of farm living, while at the same time adding to farm income. MYERS quality and insistence on adequate capacity in every installation, are your assurance of satisfactory service and economical operation.

Automatic, Self-Oiling Shallow Well

RUNNING WATER — YOUR FAMILY DESERVES IT

MYERS Water Systems come in styles and sizes to meet all needs; for operation by electricity, gasoline engine, windmill or hand power. Deep and shallow well models in both the standard plunger types and the new Ejecto types. Interesting booklet sent free. Mail the coupon TODAY.



Ejecto Automatic Deep Well

"Pump Builders Since 1870"

MYERS
WATER SYSTEMS

THE F. E. MYERS & BRO. CO., 1127 Fourth Street, Ashland, Ohio. Send free Water System Booklet and name of your nearest dealer.

Name .....

Address .....

WS421

Take Off Your Hat to The MYERS

Harvest Time on the Farm

By HOWARD CLAPPER
Superintendent, Morrow Rural Elec. Co-op.,
Mt. Gilead, Ohio

THE cook stove in the farmer's kitchen is an important cog in the wheel of harvest routine. Think of all the extra work that falls on its shoulders. During the harvest time besides the multitude of "harvest hands" with their ravenous appetites there are the regular family meals to prepare and all the canning and preserving for the winter months ahead.

Mrs. Trent Garverick of Wayne Township, Knox County, realizing this past Spring that an unusually busy harvest season was ahead and that she would need plenty of practical help, fortified herself in the kitchen with a new electric range and said: "Now let 'em come."

First came the threshers, and Mrs. Garverick fed thirty all at one meal (note Mrs. Garverick's range has four surface units, one large oven, and a deep-well cooker that operates in the warming oven). Next the soy-bean hay was harvested and for four days two extra hands were fed. The Garvericks also poured a new cement floor in their basement this summer and for a solid week the electric range was called on for meals for two cement workers. Silo fillers moved in next and electrically cooked food filled and refilled the plates of twenty hungry men. One would think that by this time both Mrs. Garverick and the range would deserve a rest, but comes club day and Mrs. Garverick prepared a light lunch (roast meat, noodles, mashed potatoes, etc.) for members of the Washington Community Club, which included seventeen women and twelve children.

By now the hot dry days have ripened the corn and the corn picking job brings in eight extra men to feed for four meals, then to top off the harvest campaign two of the men with the corn picker boarded with the Garvericks supper and breakfast for two weeks while picking corn around at the different neighbors.

Picking the corn crop just about winds up the harvest season so we stopped in to see Mrs. Garverick the other day and get all this interesting information. The electric range in the kitchen was just as shiny and bright as ever, all set to help Mrs. Garverick through coming harvest campaigns when each harvest hand (according to Mrs. Garverick) seems like a small silo that has to be filled with fried chicken, baked beans, and apple pie.

During the time when Mrs. Garverick was using her range so extensively their biggest monthly bill was only $6.57, and besides the range there are lights, a radio, washer, iron, and small appliances and Mr. Garverick uses electric motors on his corn sheller, emery wheel and cream separator.

Mrs. Garverick says she certainly doesn't miss carrying in fuel and firing up an old-fashioned stove, and after the workout she gave her electric range this summer, she says she is convinced that "electric ranges sure can take it."

• • •

A Large Refrigerator— And Am I Thankful!

I have a day and night year around helper—my refrigerator.

I make butter three times each week, in an electric churn, from a dairy of fourteen cows. The cream is first cooled by water which is pumped by electricity.

Often in warm weather I must cool the cream to bring it to the right temperature for churning, so the night before, into the refrigerator it goes.

The butter milk is put into bottles and glass jugs after each churning, placed in the refrigerator over night and delivered very cold the next day to my customers, which is pleasing to them, especially on hot days.

I place meat in the freezing cabinet to keep as long as I wish—no more meat spoiling before I can use it. I freeze chickens, home cured ham and bacon and send them by mail to my brother in Los Angeles and they reach there in fine condition. "Something from home" to them, not so practical perhaps, but acceptable and my way of saying "Thank you" for good things sent from California.

Then there are ice cubes and the many ways to use them, also ice cream frozen so easily and

Courtesy of Frigidaire Division, General Motors Sales Corporation

JULY CONTEST

Contest letters this month are going to be about household jobs you have learned to do better or more easily this year. You may have learned the trick in a study group, from your reading, or from a neighbor across the road.

Whatever it is, and however you learned it, put in into a letter that begins "This year I learned a new way to ——" and you stand a chance to win five dollars. We will pay that to the writer of the letter we select to publish.

For any other we use, we will pay one dollar.

The letters are to be sent to me, Gail Meredith, 700 S. Mills Street, Madison, Wisconsin, by July 31, 1940.

quickly, beaten just at the right time with my electric mixer.

We have vegetables in and out of season fresh and ready, and foods of every description on the shelves and in the hydrators, thereby saving a great deal on them.

Our refrigerator is large and seemed very expensive when we bought it in 1937, but it costs very little to run, has never been out of order and will pay for itself in the steps it saves.

We have a nice cool cellar which was and is appreciated, but when I think of the many times I have gone up and down those cellar stairs, am I thankful!

I don't want to even think of going without my refrigerator and that goes for all the rest of my electric helpers too.

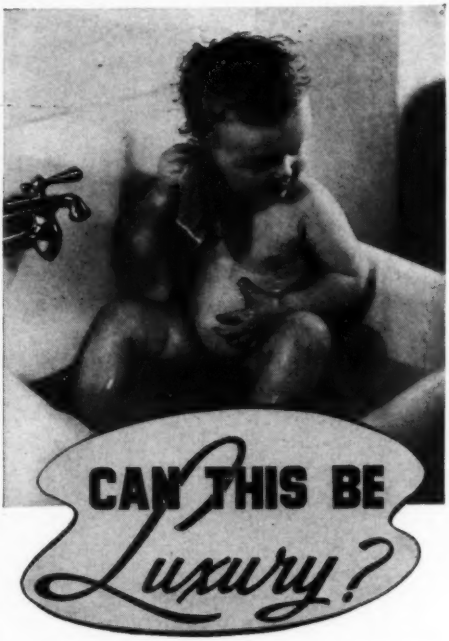
MRS. D. S. NELLIS,
Herkimer, N. Y.

A WRITER in the American Medical Journal states that men are 20 per cent more susceptible to ultra violet than women, and blondes 40 to 170 per cent more susceptible than brunettes.

Pennsylvania F. F. A. Boys Demonstrate Electricity's Advantages

The picture shows the junior demonstration team of New Wilmington, Pa., Chapter F.F.A., putting on a clever demonstration of "before and after" electrification. They did a fine job because they had personally experienced the changes and knew what they were talking about. The

demonstration was of the many uses to which a small motor can be put. The chapter is joint sponsor of the R. N. Moose Electric Demonstration Farm at Volant, Pa.



THIS young lady has a head start on the road to a healthy, happy life. Pump-and-carry drudgery can never prevent her daily bath, nor be her irksome chore as she grows older. Fresh, cool running water at the turn of a tap will ever invite her to drink in abundance. Her days will be brighter, her body stronger.

Can this be luxury?

Abundance of water will make her father's crops and livestock more productive, his home more secure against fire. Her mother's household duties—laundering, cleaning, cooking—will all be lighter, her home a greater source of pride.

Can this be luxury?

And when water for all these uses costs but a few cents a day with a GOULDS CID Water System, can running water be thought expensive?

Thousands of American home owners, by installing Goulds CID Systems have answered all these questions with an emphatic "No!" Write for full information about these inexpensive units, and decide for yourself. You'll be glad you did.

GOULDS

GOULDS PUMPS, Inc.
340 Fall Street, Seneca Falls, N. Y.

Please send me the name of the nearest Goulds Distributor. I am interested in a pump for deep well ☐, shallow well service. ☐

Name _____

Address _____ **State** _____

541

We want running water!!! Delco has been answering this demand of farm families everywhere for years with the wonderfully complete assortment of automatic electric water systems for either shallow or deep wells.

Delco and General Motors Engineers have devoted a great deal of time in designing these pumps to give you the most dependable care-free service, bring quantities of running water instantly to every faucet, and yet be economical to both buy and operate.

There are Delco Water Systems with capacities all the way from 225 to 600 gallons per hour. The Delco dealer can estimate your water requirements and tell you exactly what size and kind of pump you need. F.H.A. terms available.

To be sure of satisfaction, fill in and mail the coupon. No obligation on your part, of course.

DELCO APPLIANCE DIVISION
GENERAL MOTORS SALES CORPORATION
ROCHESTER, N. Y.

MAIL THIS COUPON

DELCO-LIGHT

ALSO MAKERS OF INDIVIDUAL LIGHT AND POWER PLANTS

DELCO APPLIANCE DIVISION
General Motors Sales Corp., 440 Lyell Ave., Rochester, N. Y.
Gentlemen: Please show us how we can estimate our water requirements.

NAME_____

ADDRESS_____

CITY_____ STATE_____

Electricity, the Catalyst

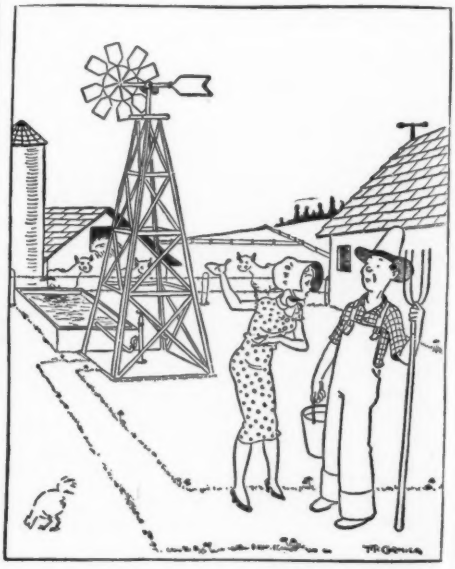
On a test farm in an Eastern State, running water, a dishwasher, an electric range, a kitchen mixer, a refrigerator and good lighting were installed in the kitchen. The farmer himself went to the expense of rebuilding the kitchen, putting in additional windows, painting the walls, putting down new linoleum and generally brightening up the place. Before installing the kitchen appliances, records had been made of the number of steps taken by the farm woman in doing her daily housework. After the change had been made, the pedometer was again strapped to the lady's ankle and steps counted. To our surprise, the number of steps taken after the improvement was greater than before. When we sought an explanation, it was given laughingly by the housewife. "Oh yes, I take more steps now because I get through with my housework so much earlier, and I can go out into the yard and work in my flower garden and with my chickens, a thing I have wanted to do for many years." During the depression in the early '30's, this woman provided a major part of the family cash income with products she made in her kitchen and sold at the Farm Woman's Market near Washington. Electricity—the catalyst!

The electric equipment not only made housework easier and more interesting; it made possible the growing of flowers and chickens and the partial support of a family. And it inspired a change from a dingy to a sunny, cheerful kitchen which has been reflected in the attitude of the family using it.

Dishwasher for $2.40

Marriage license	$2.00
Dishpan	.40
Total	$2.40

But think of the upkeep and depreciation!



King Features Syndicate, Inc.

"The cows look warm—where do you plug this thing in?"

ON THE AIR

Conducted by
JEROME J. HENRY

South American Countries Join in Radio

ARGENTINA, Chile, Panama, and Salvador are the latest countries to announce they will cooperate with the Columbia Broadcasting System in extending the "School of the Air" to both American continents.

That makes a total, thus far, of nine countries which have accepted the invitation of CBS to participate in the programs which open next October. The other countries are Mexico, Brazil, Ecuador, the Dominican Republic and Canada. It is believed similar cooperation will come from all other Latin-American countries before the fall sessions begin.

• • •

Quiz Program

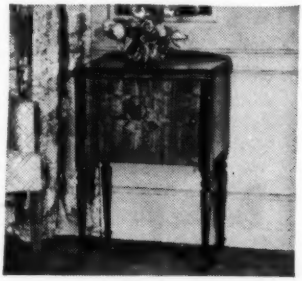
LONG sessions among a crew of capable thinkers enable Dr. I. Q. (Lewis Valentine) to uncover the puzzlers which heoffers to NBC listeners. These men are Don Heyworth, Valentine himself, and John Thorpe. The braintrust is what makes the popular Dr. I. Q. program work. The three men search for suitable material for the programs over periods of many long hours though the program occupies only a half hour on the air each Monday evening.

Bobby Larson and Aleanor Taylor of the One Man's Family, a highly popular radio program.

Valentine has given a new twist to the quiz idea by sending six announcer assistants into the audi-

"Oh, I'm so glad you decided on a Singer!"

ASK ANY WOMAN who has sewed a lot why it pays to buy a Singer. She knows how satin-smooth they run, and how long they stand up under the hardest kind of wear. And the new electrics are wonders, with many special timesavers featured exclusively by Singer. When electricity comes to your farm, why not trade in your old treadle for a new Singer electric? It costs less than you think!



New Budget Models. For as little as $5 down and small monthly terms, you can own a brand-new Singer electric. A liberal trade-in allowance will be made on your old machine. A Singer Man will gladly demonstrate in your home a new-type Singer sewing electric, along with the famous Singer vacuums and irons. Just drop us a card. No obligation.

SINGER
SEWING MACHINE CO.
149 Broadway · New York
"1500 Singer Shops and Authorized Distributors"

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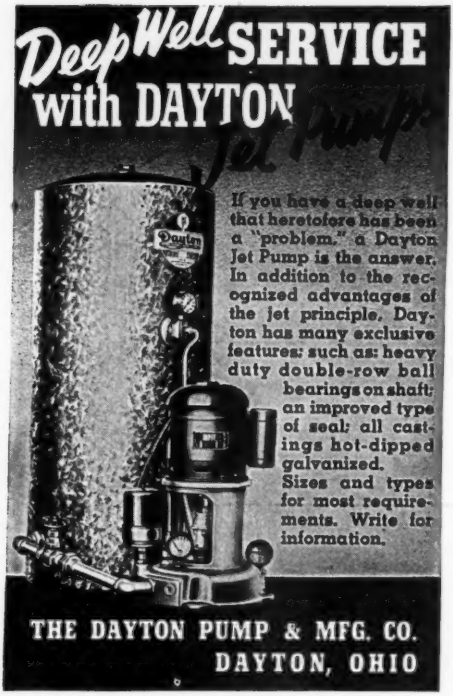
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with DAYTON
Jet Pump
If you have a deep well that heretofore has been a "problem," a Dayton Jet Pump is the answer. In addition to the recognized advantages of the jet principle, Dayton has many exclusive features: such as: heavy duty double-row ball bearings on shaft; an improved type of seal; all castings hot-dipped galvanized. Sizes and types for most requirements. Write for information.
THE DAYTON PUMP & MFG. CO.
DAYTON, OHIO

Speedy
PAINT
SPRAYERS
LOOK! ONLY $9.25 FOR THIS NEW OIL-LESS SPRAY OUTFIT!
(Without motor. With 902 gun, not shown, only $7.85)
DEALERS:
Send for catalog, price list, discounts on low cost, portable, W. R. Brown Paint Sprayers—electric and auto-power models.
Sold at Dealers Only
MAIL THIS COUPON FOR FREE ILLUSTRATED PAMPHLET OF SPEEDY LOW COST PORTABLE PAINT SPRAYERS
Name .....
Address .....
City ..... State.....
W. R. BROWN CORPORATION
Dept. C—5720 Armitage Avenue, Chicago, Ill., U. S. A.

Electricity Helped Me Earn This Money

Qualified as Milk Dealer— Made $26,280

"Thanks, Editor, for another opportunity for men to be heard, for it seems here as elsewhere the women do most of the talking.

"As a farmer with plenty of acreage to produce feed crops, I became interested in livestock and eventually grew into the dairy business. But had it not been for electricity I could never have had proper refrigeration nor water pressure sufficient to have qualified (under Alabama's laws) for a permit as a raw milk dealer. So you see electricity has been a major factor in helping me earn a cash income.

"Now I have been served by electricity for the past four years and during this period my milk sales have amounted to approximately $18 per day or a total of $26,280.

"Naturally I'm an enthusiastic booster for electricity on the farm.

J. M. DENSON,
R. I, Helena, Ala.

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Her folks would gladly pay her fare
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And let them muss things up in style
And have some comfort for awhile.

JOSEPHINE L. BAKER, Midlothian, Texas.

Pulley Sizes for Lawnmower

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Answer: While I do not know the size pulleys used by Mr. Winter on his lawnmower, I take it from the appearance that the motor pulley was 1½" in diameter and the pulley on the reel 4" in diameter. This would give a reel speed of about 650 R.P.M., which should be about right.

Watthour Meters

Question: *Where could I purchase an electric meter to install in annex building that furnishes brooder house and other houses so as to keep farm accounts separate from residence?*
O. G., Conn.

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Watt hour meters can be purchased from the following companies: General Electric Co., Schenectady, N. Y.; Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.; Duncan Electric Meter Co., Lafayette, Ind.; and Sangamo Electric Co., Springfield, Ill.

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Question: *My brooder has given me bad results. Where can I get an electric 1,000 chick brooder that will be automatic?* F. D. R., Ohio.

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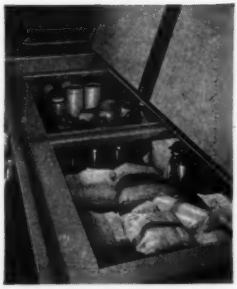
for Farm and Home



Typical "Bank" of frozen food in an ESCO on an Indiana farm.

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There's a size for every need—four distinct lines —48 Models with capacities from 8 to 40 cubic feet.

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ESCO CABINET COMPANY
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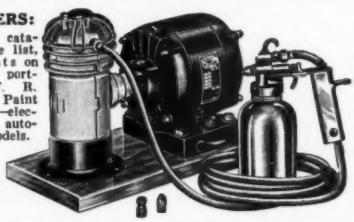
Speedy PAINT SPRAYERS

LOOK! ONLY $9.25 FOR THIS NEW OIL-LESS SPRAY OUTFIT!

(Without motor. With 902 gun, not shown, only $7.85)

DEALERS: Send for catalog, price list, discounts on low cost, portable, W. R. Brown Paint Sprayers—electric and auto-power models.



Sold at Dealers Only

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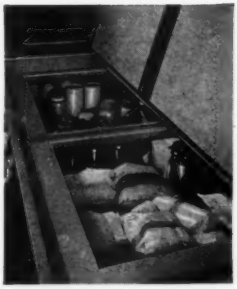

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trouble is that the brushes are worn short. I assume, of course, that the pump and motor have been oiled regularly and that the machine is not gummed up so that it turns hard. Another cause of trouble might be low voltage. If you have started using electric brooders or other current using devices on the same line with your pump, low voltage may be the trouble. That would call for larger wire sizes. If the belt is in bad condition and being run too tight, that might also cause heating; or, the bearings may be worn so the rotor does not turn freely.

Water System Pressure Switch

Question: *Where can I buy a pressure switch for a home assembled electric water system?*
J. M., Ark.

Answer: You can obtain pressure switches for water systems from the Square D Co., 6060 Rivard St., Detroit, Mich., or from the Penn Electric Switch Co., Goshen, Ind., or from most pump dealers.

Sterilamps

Question: *Can you tell me anything about the new Sterilamp? Could it be used on the farm to disinfect chicken houses, etc., and in brooder houses for control of coccidiosis in the baby chicks?*
P. W. B., Ariz.

Answer: These lamps do kill germs in the air when it is circulated past them. They would not be satisfactory in their present state of development for disinfecting chicken houses because they would not kill disease germs on the roosts, the dropping boards and on the floor. They are intended primarily for maintaining a sterile atmosphere.

Root Storage—Refrigerate or Not?

Question: *I have a space under my front porch 6 x 9 x 7 ft. high excavated and walled with brick. I want to make a root cellar out of it. What should I insulate the walls with to make it so I could regulate the temperature and how should I go about it? Should I use a refrigeration outfit? Please give approximate cost of such an outfit.*
J. A. W., Illinois.

Answer: For ordinary storage, as a root cellar, I would not use refrigeration, and in this case saw-dust or shavings would be a satisfactory insulating material. The top of the storage cellar should be especially well insulated. I would suggest placing screened air inlets about 8 inches square in two bottom corners of your root cellar with doors over them which could be adjusted or closed. At the top of one side, you might have an outlet 12 inches in diameter with an exhaust fan in it for moving air out of the storage. On warm days the fan could be run at night to draw in cool air.

If you wish to refrigerate vegetables in the summer-time, you should insulate the cellar with 3 inches of corkboard put on with broken joints in two layers of 1½ inch each, and cemented together and painted with refrigeration asphalt. 6 or 8 inches of shavings or saw-dust would probably be cheaper, but would take up more space and would tend to become moist and lose its insulating properties. A refrigeration outfit installed in this room would cost you about $300.

Solar Water Heaters

Question: *Can you send me information on heating water with the sun's rays?*
E. C., New York.

Answer: Using the sun for heating water or the sun in combination with electricity is a rather common practice in Florida and in California. The type heater most widely used has the external appearance of an electric hotbed and is usually placed on a roof with a south slope. In the frame under the glass sash are placed sheets of corrugated iron with copper tubing soldered in the valleys of the corrugations. There is a header at either side, and the water enters the copper tubing from

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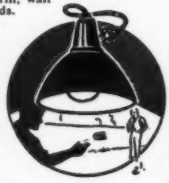

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the lower side, flowing upward as it heats and being taken out at the upper ends of the coils. The assembly of piping and sheet iron is painted a dull black to improve heat absorption.

In an experimental installation I made in Maryland about 10 years ago, we were able to heat 10 gallons of water from 70° to 150° during sunny days in September with a heat absorbing unit 6 ft. square.

A very good bulletin on the subject of solar water heating is available from the University of California, Berkeley, Cal. It is Bulletin No. 602.

The only manufacturer of solar water heaters whose address I have is the Day & Night Water Heater Co., Monrovia, Cal.

Ultra-Violet for Poultry Diseases

Question: *Is it feasible to use some type of ultra-violet lamps or other type electric equipment for the purpose of preventing bronchitis in chickens?* W. H. S., Ill.

Answer: So far as I know, there is no electrical equipment which offers positive assurance of the prevention of bronchitis in chickens. Ultra-violet stimulates the general health and vigor of birds, which helps them to resist disease. We have had a number of reports from farmers of very beneficial effects from the use of different types of ultra-violet producing lamps. Research results from experiment stations on such use are rather meager. It is something which is still in the experimental stage and on which there are no guarantees. Personally, I believe if you use the lamps as they should be used, you will be pleased as other farmers have been.

—*I'm proud I am a Farmer.*—

Lights for British Livestock

A farmer of Waltham Cross, England, who has had several of his animals killed by cars and trucks on dark country roads has now fitted his stock with electric lamps. The picture shows the farmer with one of his horses equipped with a battery headlamp. Tail lamps are fastened to the breeching of the harness. In the case of cows, the light is fastened to the horns.

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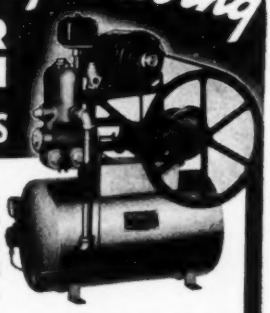

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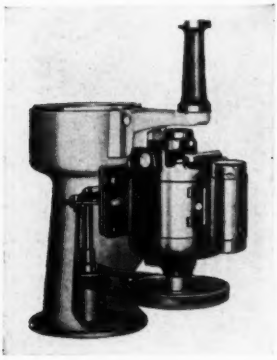
Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

15 to 45 cu. ft. Refrigerators

The accompanying picture shows one of three new types of refrigerators available for farm and commercial use. This one is a 15 cu. ft. model with ice trays and a large space which may be equipped with shelves or meat hooks. Similar boxes are made in sizes up to 45 cu. ft. and in two types without ice trays, all of the space being used for storage. In the two latter models, one has coils flat against the back wall of the box. The second type has the coils in a small compartment against the back wall with a small fan to circulate the cold air through the box. It also contains a carbon filter for removing odors and dust from the air.

Gearless Electric Cream Separator



The illustration shows the working parts of a new cream separator which has the motor belted directly to the bowl-shaft, eliminating the customary gearing. The bowl is of the curved disc design. All parts except the delivery spouts and milk receiver are enclosed within a sanitary housing.

Frozen Food Cabinets

In line with the development of interest in farm freezing of perishable products, one of our advertisers announces a redesigned line of freezing and storage equipment including 5 storage cabinets of from 8 to 40 cu. ft. capacity, 4 low temperature freezing cabinets and 4 sizes of combination freezing and storage cabinets. Other models combine frozen storage with separate compartments for food storage at 40°. Each model is obtainable with hinged lids or with smaller openings with hard rubber covers.

"Baby" Cellar Pump

This is a 1/20 hp pump for removing occasional, small quantities of water from cellars, etc. Note the size: 11 in. high; base 2½ x 5 in. Weight 5½ pounds. It is a centrifugal pump with a maximum capacity of 7 gal. per minute against a maximum pressure of 17 pounds per sq. in. (about 40 ft. lift). Prices with automatic float switch $19.50; non - automatic style $16.50

New Floodlight $6.50 to $14.50

This floodlight may be obtained with 100 or 200 watt lamps and wide angle or narrow beam lenses. Reflectors are one-piece aluminum and weatherproof. Lamp may be turned through a complete horizontal circle and through 135 degrees vertically. Wide beam, etched reflector, 100 watt, $6.50. Narrow beam, Alzaked reflector and larger size, more. Plain, red, green, amber or blue lenses available.

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